

DETAILED ACTION

Information Disclosure Statement

1. The IDS submitted on June 12, 2006, has not been reviewed by the Examiner because no copy can be found in the record. It is noted that an IDS was submitted, however, even after attempts via telephone conversations with Felix D'Ambrosio by the Examiner to have the IDS resubmitted, no copy heretofore has been reviewed, as no copy has been resubmitted. The Examiner again requests that an additional copy of the IDS be submitted to the Examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11, 14-16, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Frey et al. (PG-PUB 2002/0033054 A1).

Considering claim 11, Frey discloses a magneto-inductive flow sensor for a fluid flowing in a pipeline, comprising:

- a measuring tube 1 for conveying the fluid (**Figures 1-2; [0127]**);

- a magnetic circuit **2** arranged at said measuring tube **1** for producing and guiding a magnetic field, which induces an electric field in the flowing fluid (**Figures 1-2; [0127]**); and
 - measuring electrodes **3,31,32** for tapping a voltage from the electric field (**Figures 1-2; [0182]**);
 - wherein said measuring tube **1** includes a carrier tube **11** and a liner **12**, especially a tubular liner, of insulating material accommodated in a lumen of said carrier tube (**Figures 1-2; [0129]**); and
 - at least one groove **111,112** formed in a wall of said carrier tube **11**, which is open toward the lumen of said carrier tube (**Figures 3a, 3b; [0153-156]**).
- said measuring tube includes:
 - an open-pored support skeleton **13** embedded in said liner **12** for stabilizing said liner (**[0129]**); and
 - said at least one groove **111,112**, is at least partially so filled by a material, especially a sintered material, of said support skeleton, directly sintered in said carrier tube (**[0129]; [0153-156]**);
 - said support skeleton **13** is connected by shape interlocking with said carrier tube **11** (**[0153-156]**); and

- the strength loss temperature of said carrier tube is greater than the strength loss temperature of said support skeleton ([0129]; [0132-133]; [0139]; [0193]).

Considering claim 14, Frey discloses that a ridge is formed on said support skeleton **13** corresponding to said one groove **111,112**, and said ridge is comprised, at least in part, of the material of said support skeleton **13** and extends into said one groove **111,112** (**Figures 3a, 3b; [0153-156]**).

Considering claim 15, Frey discloses that said carrier tube **11** further has an additional groove **other of 111,112**, spaced from said one groove **first of 111,112**, formed in a wall of said carrier tube and open towards the lumen of said carrier tube (**Figures 3a,3b**).

Considering claim 16, Frey discloses that said at least one groove **111,112**, is at least partially so filled by insulating material **12** of said liner, that said liner is connected with said carrier tube by shape-interlocking (**Figure 3e; [0157]**).

Considering claim 18, Frey discloses that said first groove **111,112** is embodied as an annular groove extending essentially coaxially with the wall of said carrier tube (**Figures 3a,3b; [0153-156]; Cylindrical area is coaxial and annular**).

Considering claim 20, Frey discloses a method for manufacturing a measuring tube for a flow sensor comprising a measuring tube which includes a carrier tube and a liner, a magnetic circuit arrangement, and measuring electrodes, which method comprises the steps of:

- forming at least one groove **111,112** in a wall of said carrier tube **11** which is open toward the lumen of said carrier tube;
- producing a support skeleton **13** in the lumen of the carrier tube **11**; and
- introducing the liner **12** into the lumen of the carrier tube;
- wherein for producing the support skeleton **13**, loose sinter starting material is so charged into the lumen of the carrier tube, that it at least partially fills the at least one groove **111,112**, and the charged sinter starting material is sintered within the carrier tube;
- for introducing the liner **12** into the lumen, insulating material is allowed to penetrate at least partially into the produced support skeleton and is allowed to solidify in the lumen of the carrier tube, after the sinter starting material has been sintered within the carrier tube (**[0129-0157]**); and
- the strength loss temperature of said carrier tube is provided to be greater than the strength loss temperature of said support skeleton (**[0129]; [0132-133]; [0139]; [0193]**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 13, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frey et al. (PG-PUB 2002/0033054 A1) in view of Schmook (US Patent 4,388,834).

Considering claim 13, Frey fails to disclose that said at least one groove has a backcut, which is so filled by material of said support skeleton that a radially effective shape interlocking is formed between said support skeleton and said carrier tube.

However, Schmook teaches the use of a backcut in the wall of a tube that is filled with a connecting material (**Figures 10-12; Column 4, lines 45-53**).

The invention by Frey is directed towards a magneto-inductive flow sensor having a groove in the wall of the inner tube for incorporation of a sintered material. The invention fails to disclose that the groove has a backcut. The invention by Schmook teaches the use of a backcut in order to more reliably connect two elements of an electromagneto-inductive flow sensor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to be obvious to one of ordinary skill in the art at the time the invention was made to use the backcut groove as taught by Schmook in the invention by Frey. That is, using the known technique of

a backcut groove to provide increased connection would have been obvious to one of ordinary skill.

Considering claim 17, Frey fails to disclose that said at least one groove includes a backcut, which is so filled by insulating material of said liner, that a shape-interlocking effective at least radially inwardly is formed between said liner and said carrier tube.

However, Schmooch teaches the use of a backcut in the wall of a tube that is filled with a connecting material (**Figures 10-12; Column 4, lines 45-53**).

The invention by Frey is directed towards a magneto-inductive flow sensor having a groove in the wall of the inner tube for incorporation of an insulating material. The invention fails to disclose that the groove has a backcut. The invention by Schmooch teaches the use of a backcut in order to more reliably connect two elements of an electromagneto-inductive flow sensor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to be obvious to one of ordinary skill in the art at the time the invention was made to use the backcut groove as taught by Schmooch in the invention by Frey. That is, using the known technique of a backcut groove to provide increased connection would have been obvious to one of ordinary skill.

Considering claim 19, Frey fails to disclose that said first groove has an essentially trapezoidally shaped cross section.

However, Schmooch teaches the use of a substantially trapezoidally shaped backcut in the wall of a tube that is filled with a connecting material (**Figures 10-12; Column 4, lines 45-53**).

The invention by Frey is directed towards a magneto-inductive flow sensor having a groove in the wall of the inner tube for incorporation of an insulating material. The invention fails to disclose that the groove has a substantially trapezoidally backcut. The invention by Schmooch teaches the use of a substantially trapezoidally backcut in order to more reliably connect two elements of an electromagneto-inductive flow sensor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to be obvious to one of ordinary skill in the art at the time the invention was made to use the substantially trapezoidally backcut groove as taught by Schmooch in the invention by Frey. That is, using the known technique of a substantially trapezoidally backcut groove to provide increased connection would have been obvious to one of ordinary skill.

Response to Arguments

4. Applicant's arguments filed September 2, 2009, have been fully considered but they are not persuasive.
5. The Applicant contends that the invention by Frey fails to disclose that the support skeleton is connected by shape interlocking with said carrier tube.
6. This limitation has been previously rejected on the basis that [0153-156] of Frey discloses that, as a result of sintering, both the reinforcing body and the support tube are secured in place in an expanded portion of the support tube. Therefore, the shape of the sintered material interlocks the support tube and the reinforcing body.
7. The Applicant contends that the strength loss temperature and the melting temperature are not the same. The Examiner believes, however, that the strength loss

temperature limitation is inherently present due to the materials being used in the both the instant application and the prior art, see paragraphs [0132] and [0139] to show that the materials of the support tube and the reinforcing body are identical to the materials used in the instant application.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Dunlap whose telephone number is (571)270-1335. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lisa Caputo can be reached on (571) 272-2388. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. D./
Examiner, Art Unit 2855
January 14, 2010

/Lisa M. Caputo/
Supervisory Patent Examiner, Art Unit 2855